Effect of perioperative goal-directed hemodynamic therapy on postoperative recovery following major abdominal surgery-a systematic review and meta-analysis of randomized controlled trials

Sun Y(1), Chai F(2), Pan C(2), Romeiser JL(3)(4), Gan TJ(4). Crit Care. 2017 Jun 12;21(1):141. doi: 10.1186/s13054-017-1728-8.

BACKGROUND: Goal-directed hemodynamic therapy (GDHT) has been used in the clinical setting for years. However, the evidence for the beneficial effect of GDHT on postoperative recovery remains inconsistent. The aim of this systematic review and meta-analysis was to evaluate the effect of perioperative GDHT in comparison with conventional fluid therapy on postoperative recovery in adults undergoing major abdominal surgery.

METHODS: Randomized controlled trials (RCTs) in which researchers evaluated the effect of perioperative use of GDHT on postoperative recovery in comparison with conventional fluid therapy following abdominal surgery in adults (i.e., >16 years) were considered. The effect sizes with 95% CIs were calculated.

RESULTS: Forty-five eligible RCTs were included. Perioperative GDHT was associated with a significant reduction in short-term mortality (risk ratio [RR] 0.75, 95% CI 0.61-0.91, p = 0.004, I 2 = 0), long-term mortality (RR 0.80, 95% CI 0.64-0.99, p = 0.04, I 2 = 4%), and overall complication rates (RR 0.76, 95% CI 0.68-0.85, p < 0.0001, I 2 = 38%). GDHT also facilitated gastrointestinal function recovery, as demonstrated by shortening the time to first flatus by 0.4 days (95% CI -0.72 to -0.08, p = 0.01, I 2 = 74%) and the time to toleration of oral diet by 0.74 days (95% CI -1.44 to -0.03, p < 0.0001, I 2 = 92%).

CONCLUSIONS: This systematic review of available evidence suggests that the use of perioperative GDHT may facilitate recovery in patients undergoing major abdominal surgery.